

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 February 2005 (10.02.2005)

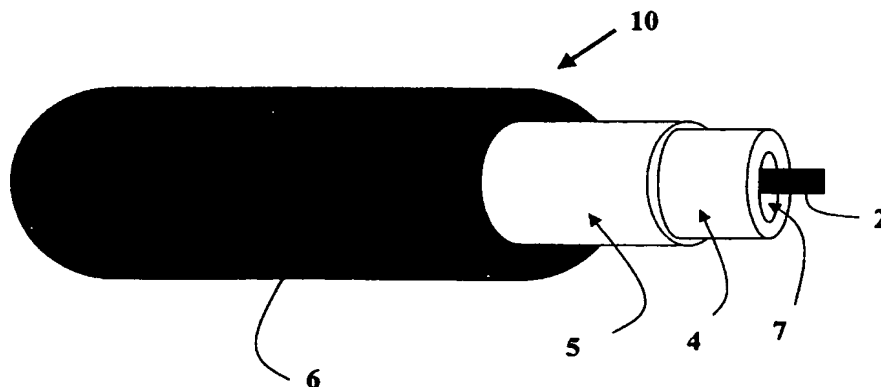
PCT

(10) International Publication Number
WO 2005/013225 A1

- (51) International Patent Classification⁷: **G08B 13/22**, H01B 13/016, 11/18
- (21) International Application Number: PCT/CA2004/001412
- (22) International Filing Date: 28 July 2004 (28.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10/627,618 28 July 2003 (28.07.2003) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:**
— of inventorship (Rule 4.17(iv)) for US only
- Published:**
— with international search report
— with amended claims

[Continued on next page]

(54) Title: TRIBOELECTRIC, RANGING, OR DUAL USE SECURITY SENSOR CABLE AND METHOD OF MANUFACTURING SAME



(57) Abstract: The present invention provides an inexpensive security sensor cable, a method for manufacturing of same and an overall security system for using that sensor cable. The sensor cable consists of a central conductor, an air separator, a polyethylene dielectric tube, an outer conductor and an outer protective jacket. The central conductor is loosely centered in the coaxial cable and thus freely movable relative to the dielectric tube. The sensor cable has application either in a passive sensing system or in an active ranging sensing system to determine the location of an intrusion along the cable. For the passive sensing function, when the center conductor moves, it contacts a suitable dielectric material from the triboelectric series, such as polyethylene, which can be processed to produce a charge transfer by triboelectric effect that is measurable as a terminal voltage. In an active system, the central conductor moves within the dielectric in response to a vibration to provide an impedance change that can be sensed. Conventional radio grade cable may be modified in its construction by removing its dielectric thread to manufacture the sensor cable, thus enabling the center conductor to move freely in the air gap within the dielectric tube. An inexpensive method of manufacturing sensor cable is provided as the cable parts are readily available. Such a sensor cable is advantageous in that the passive triboelectric properties of the cable, in response to a disturbance, can provide a larger voltage response over prior art cables.



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